```
=> d his

     (FILE 'HOME' ENTERED AT 16:45:49 ON 29 AUG 2006)

     FILE 'REGISTRY' ENTERED AT 16:46:00 ON 29 AUG 2006
L1                STRUCTURE UPLOADED
L2              0 S L1 SSS SAM
L3             11 S L1 SSS FULL

     FILE 'CAPLUS' ENTERED AT 16:47:12 ON 29 AUG 2006
L4              5 S L3

     FILE 'HOME' ENTERED AT 16:48:03 ON 29 AUG 2006
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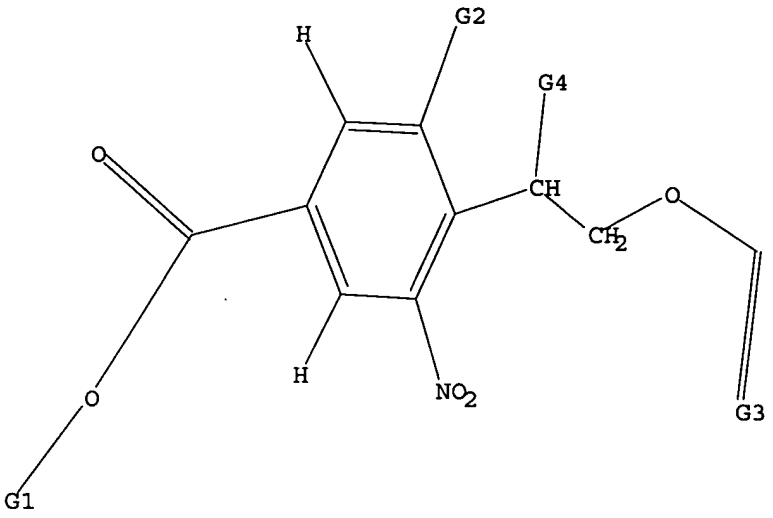

G1 Me,t-Bu

G2 H,NO2,Cl,Br,F,I

G3 O,S

G4 H,MeO,Ak

Structure attributes must be viewed using STN Express query preparation.

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=> s l1 sss sam
SAMPLE SEARCH INITIATED 16:46:56 FILE 'REGISTRY'
SAMPLE SCREEN SEARCH COMPLETED -        3 TO ITERATE

100.0% PROCESSED         3 ITERATIONS                                0 ANSWERS
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS:  ONLINE  **COMPLETE**
                        BATCH   **COMPLETE**
PROJECTED ITERATIONS:            3 TO      163
PROJECTED ANSWERS:               0 TO        0

L2             0 SEA SSS SAM L1

=> s l1 sss full
FULL SEARCH INITIATED 16:47:03 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -       68 TO ITERATE

100.0% PROCESSED        68 ITERATIONS                              11 ANSWERS
SEARCH TIME: 00.00.01

L3            11 SEA SSS FUL L1

=> FIL CAPLUS
COST IN U.S. DOLLARS                              SINCE FILE      TOTAL
                                                     ENTRY    SESSION
FULL ESTIMATED COST                                 167.38     167.59

FILE 'CAPLUS' ENTERED AT 16:47:12 ON 29 AUG 2006
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FILE COVERS 1907 - 29 Aug 2006 VOL 145 ISS 10
FILE LAST UPDATED: 28 Aug 2006 (20060828/ED)

Effective October 17, 2005, revised CAS Information Use Policies apply. They are available for your review at:

http://www.cas.org/infopolicy.html

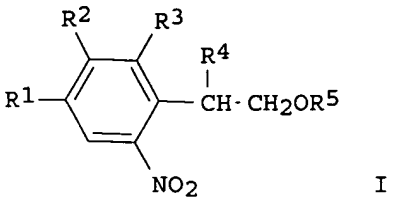
=> s l3
L4 5 L3

=> d ibib abs hitstr 1-5

L4 ANSWER 1 OF 5 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:718549 CAPLUS
DOCUMENT NUMBER: 141:225775
TITLE: Novel photolabile protective groups for improved processes to prepare oligonucleotide arrays
INVENTOR(S): Buehler, Sigrid; Ott, Markus; Pfleiderer, Wolfgang
PATENT ASSIGNEE(S): Nigu Chemie G.m.b.H., Germany
SOURCE: PCT Int. Appl., 67 pp.
CODEN: PIXXD2
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.		DATE
WO 2004074300	A2	20040902	WO 2004-EP50158		20040219
WO 2004074300	A3	20041229			
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI					
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG					
US 2004175741	A1	20040909	US 2004-764989		20040126
GB 2414237	A1	20051123	GB 2005-17834		20040219
PRIORITY APPLN. INFO.:			US 2003-449070P	P	20030221
			US 2004-764989	A	20040126
			WO 2004-EP50158	W	20040219

OTHER SOURCE(S): CASREACT 141:225775; MARPAT 141:225775
GI



I

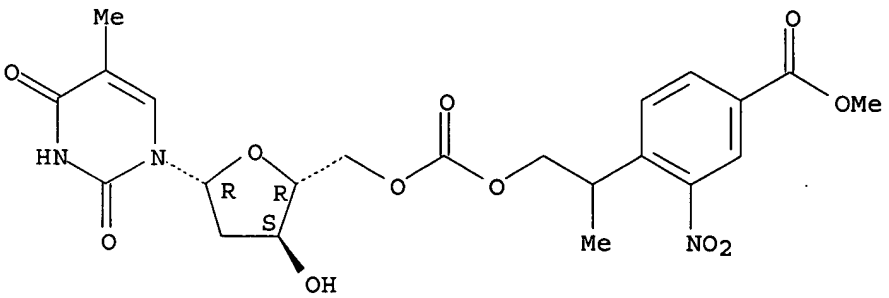
AB The present invention discloses novel and improved nucleosidic and nucleotidic compds. I, wherein R1 is COOY, wherein Y is alkyl under the proviso that R2 is H, NO2, CN, OCH3, halogen, alkyl, alkoxyl; or R1 is H, NO2, CN, OCH3, halogen, alkyl, alkoxyl, under the proviso that R2 is aryl, heteroaryl, aroyl; R3 is H, NO2, halogen; R4 is H, OCH3, alkyl; R5 is H, C(:X)Z; X is oxygen, sulfur; Z is leaving group, O-atom of a hydroxy group, or a N-atom of an amino group, of a compound comprising the photolabile protective group, that are useful in the light-directed synthesis of oligonucleotides, as well as, methods and reagents for their preparation These compds. are characterized by novel photolabile protective groups that are attached to either the 5'- or the 3'- hydroxyl group of a nucleoside moiety. The photolabile protective group is comprised of a 2-(2-nitrophenyl)-ethoxycarbonyl skeleton with at least one substituent on the aromatic ring that is either an aryl, an aroyl, a heteroaryl or an alkoxycarbonyl group. The present invention includes the use of the aforementioned compds. in light-directed oligonucleotide synthesis, the resp. assembly of nucleic acid micro-arrays and their application. Thus, N6-benzoyl-5'-O-[2-(5-benzoyl-2-nitrophenyl)-1-propyloxycarbonyl]-2'-deoxyadenosine-3'-O-(3-cyanoethoxy-N,N-diisopropyl)phosphoramidite was prepared using 2-(2-nitrophenyl)-ethoxycarbonyl protective groups.

IT 702643-86-5P 702643-87-6P 748789-31-3P
RL: IMF (Industrial manufacture); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(2-(2-nitrophenyl)-ethoxycarbonyl novel photolabile protective groups for improved processes to prepare oligonucleotide arrays)

RN 702643-86-5 CAPLUS

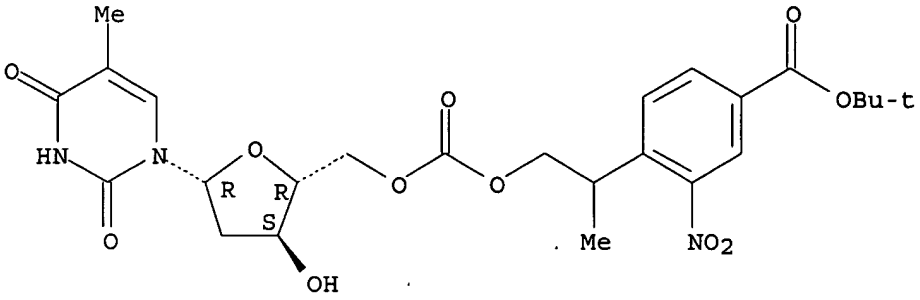
CN Thymidine, 5'-[2-[4-(methoxycarbonyl)-2-nitrophenyl]propyl carbonate] (9CI) (CA INDEX NAME)

Absolute stereochemistry.

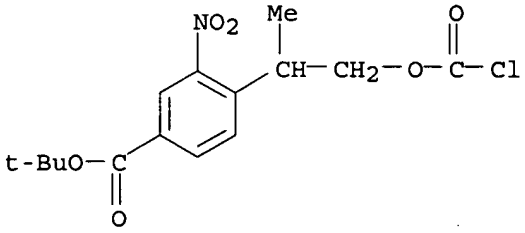


RN 702643-87-6 CAPLUS
CN Thymidine, 5'-[2-[4-[(1,1-dimethylethoxy)carbonyl]-2-nitrophenyl]propyl carbonate] (9CI) (CA INDEX NAME)

Absolute stereochemistry.

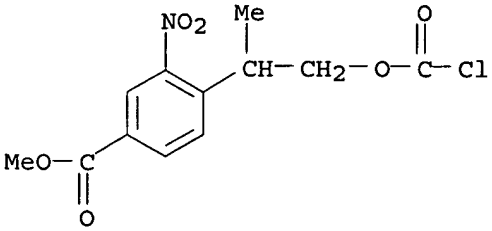


RN 748789-31-3 CAPLUS
CN Benzoic acid, 4-[2-[(chlorocarbonyl)oxy]-1-methylethyl]-3-nitro-, 1,1-dimethylethyl ester (9CI) (CA INDEX NAME)



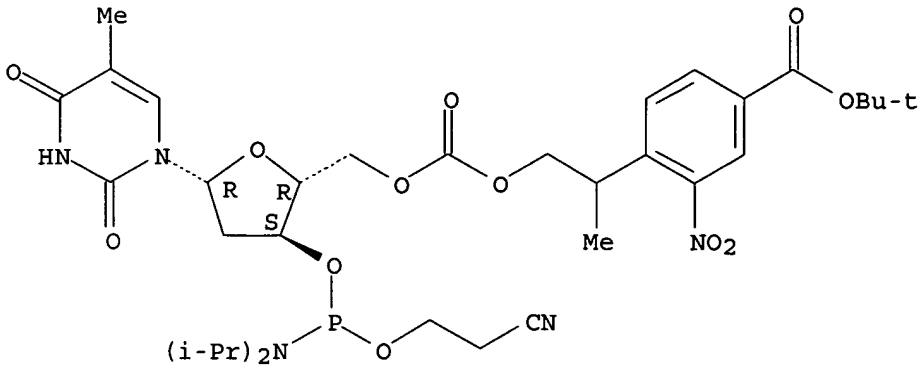
IT 748789-30-2P 748789-38-0P
RL: IMF (Industrial manufacture); SPN (Synthetic preparation); PREP (Preparation)
(2-(2-nitrophenyl)-ethoxycarbonyl novel photolabile protective groups for improved processes to prepare oligonucleotide arrays)

RN 748789-30-2 CAPLUS
CN Benzoic acid, 4-[2-[(chlorocarbonyl)oxy]-1-methylethyl]-3-nitro-, methyl ester (9CI) (CA INDEX NAME)



RN 748789-38-0 CAPLUS
CN Thymidine, 3'-[2-cyanoethyl bis(1-methylethyl)phosphoramidite] 5'-[2-[4-[(1,1-dimethylethoxy)carbonyl]-2-nitrophenyl]propyl carbonate] (9CI) (CA INDEX NAME)

Absolute stereochemistry.



L4 ANSWER 2 OF 5 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:328520 CAPLUS
DOCUMENT NUMBER: 141:38801
TITLE: New types of very efficient photolabile protecting groups based upon the [2-(2-nitrophenyl)propoxy]carbonyl (NPPOC) moiety
AUTHOR(S): Buehler, Sigrid; Lagoja, Irene; Giegrich, Heiner; Stengele, Klaus-Peter; Pfleiderer, Wolfgang
CORPORATE SOURCE: Chemogenix, Waldkraiburg, D-84478, Germany
SOURCE: Helvetica Chimica Acta (2004), 87(3), 620-659
CODEN: HCACAV; ISSN: 0018-019X
PUBLISHER: Verlag Helvetica Chimica Acta
DOCUMENT TYPE: Journal
LANGUAGE: English
OTHER SOURCE(S): CASREACT 141:38801
GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

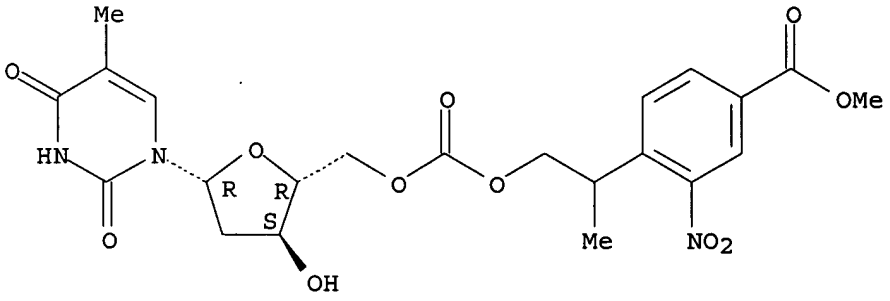
AB Based upon the photolabile [2-(2-nitrophenyl)propoxy]carbonyl group (NPPOC), a large number of modified 2-(2-nitrophenyl)propanol derivs. substituted at the Ph ring, e.g. I, were synthesized to improve the photo-reactivity of this new type of photolabile entity. The Ph moiety was also exchanged by the naphthalenyl group, the thienyl substituent, and the benzo-thienyl substituent, e.g. II. The 2-(2-nitroaryl- and heteroaryl)propanols were converted with diphosgene into the corresponding carbono-chloridates, which reacted subsequently with thymidine to the thymidine 5'-(protected carbonates), e.g. III, as the main reaction products. In several cases, the corresponding 3'-carbonates and 3',5'-dicarbonates were also isolated and characterized. Photolysis studies under standardized conditions indicated that the rate of photo-cleavage varies in a broad range depending on the substituents. So far, the thymidine 5'-[2-(5-halo-2-nitrophenyl)propyl carbonates], 5'-[2-(nitro[1,1'-biphenyl]3-yl)propyl carbonates], 5'-{2-[2-nitro-5-(thianthren-1-yl)phenyl]propyl carbonate}, 5'-[2-(5-naphthalenyl-2-nitrophenyl)propyl carbonates], and 5'-[2-(2-nitro-5-thienylphenyl)propyl carbonates] showed the best properties regarding fast and uniform deprotection. Since the nucleobases of, e.g. IV, do not influence the

photo-cleavage features, in general, the new type of photolabile building blocks allows in form of their 3'-phosphoramidites the photo-lithog. formation of high-quality bio-chips.

IT 702643-86-5P 702643-87-6P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(efficient photolabile protecting groups based upon the [2-(2-nitrophenyl)propoxy]carbonyl (NPPOC) moiety in preparation of nucleosides)

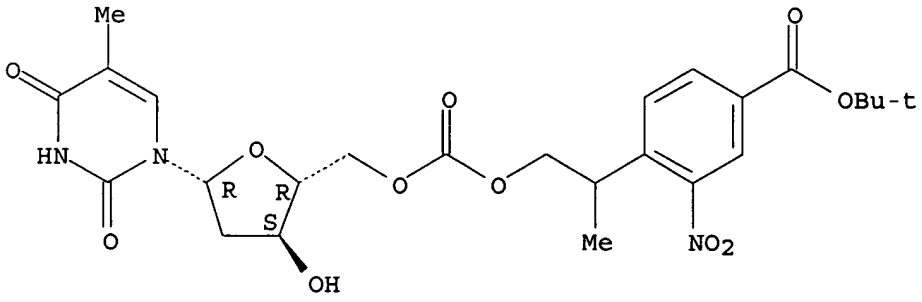
RN 702643-86-5 CAPLUS
CN Thymidine, 5'-[2-[4-(methoxycarbonyl)-2-nitrophenyl]propyl carbonate] (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 702643-87-6 CAPLUS
CN Thymidine, 5'-[2-[4-[(1,1-dimethylethoxy)carbonyl]-2-nitrophenyl]propyl carbonate] (9CI) (CA INDEX NAME)

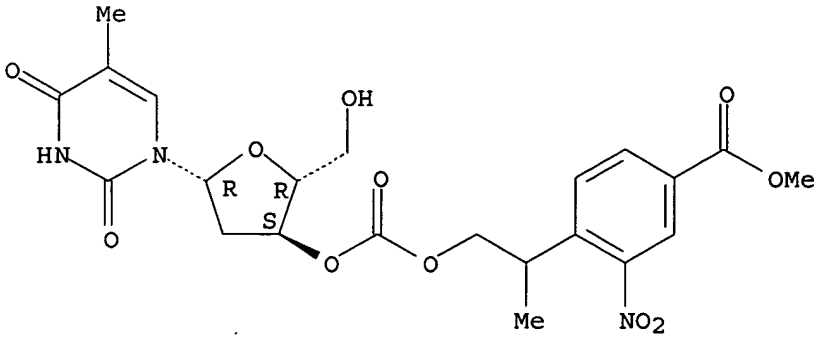
Absolute stereochemistry.



IT 702644-36-8P
RL: SPN (Synthetic preparation); PREP (Preparation)
(efficient photolabile protecting groups based upon the [2-(2-nitrophenyl)propoxy]carbonyl (NPPOC) moiety in preparation of nucleosides)

RN 702644-36-8 CAPLUS
CN Thymidine, 3'-[2-[4-(methoxycarbonyl)-2-nitrophenyl]propyl carbonate] (9CI) (CA INDEX NAME)

Absolute stereochemistry.

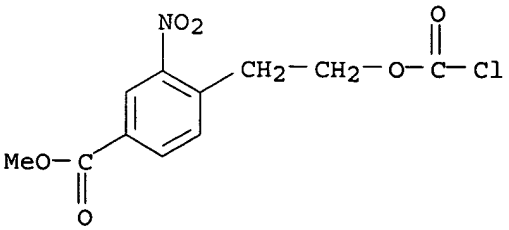


REFERENCE COUNT: 82 THERE ARE 82 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

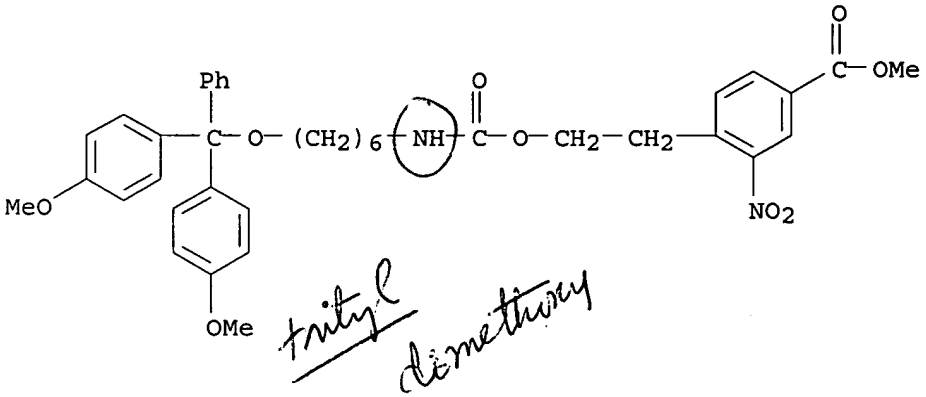
L4 ANSWER 3 OF 5 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1996:701792 CAPLUS
DOCUMENT NUMBER: 126:31567
TITLE: New carbamate supports for the preparation of 3'-amino-modified oligonucleotides
AUTHOR(S): Avino, Anna; Garcia, Ramon Guimil; Albericio, Fernando; Mann, Matthias; Wilm, Matthias; Neubauer, Gitte; Eritja, Ramon
CORPORATE SOURCE: Dep. Molecular Biol., Cent. Investigacion Desarrollo-CSIC, Barcelona, E-08034, Spain
SOURCE: Bioorganic & Medicinal Chemistry (1996), 4(10), 1649-1658
CODEN: BMECEP; ISSN: 0968-0896
PUBLISHER: Elsevier
DOCUMENT TYPE: Journal
LANGUAGE: English

AB A novel approach for the preparation of oligodideoxyribonucleotides carrying amino groups at the 3'-end is described. Several CPG supports having aminoalkyl groups and 3'-amino-2',3'-dideoxynucleosides linked through basic-labile carbamate linkages such as 2-(2-nitrophenyl)ethoxycarbonyl and fluorenylmethoxycarbonyl were prepared using two different strategies. These supports are compatible to the standard solid phase phosphite-triester methodol. and yield oligonucleotides containing amino groups at the 3'-end. Several properties of the 3'-amino oligonucleotides, such as nuclease resistance, hybridization, and preparation of oligonucleotide conjugates are discussed.

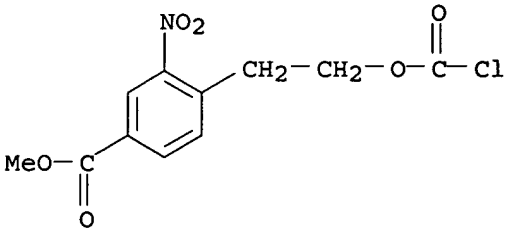
IT 134403-97-7
RL: RCT (Reactant); RACT (Reactant or reagent)
(new carbamate supports for the preparation of aminooligonucleotides)
RN 134403-97-7 CAPLUS
CN Benzoic acid, 4-[2-[(chlorocarbonyl)oxy]ethyl]-3-nitro-, methyl ester (9CI) (CA INDEX NAME)



IT 184241-42-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(new carbamate supports for the preparation of aminooligonucleotides)
RN 184241-42-7 CAPLUS
CN Benzoic acid, 4-[2-[[[[6-[bis(4-methoxyphenyl)phenylmethoxy]hexyl]amino]carbonyl]oxy]ethyl]-3-nitro-, methyl ester (9CI) (CA INDEX NAME)



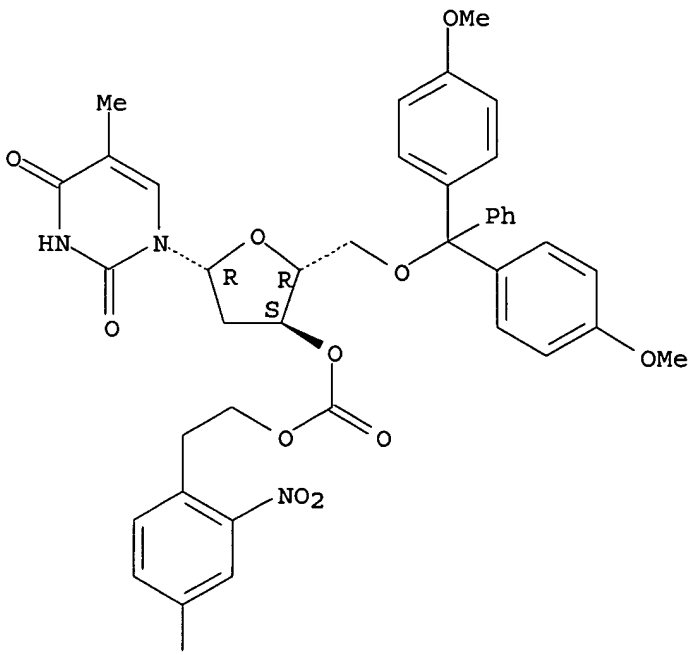
L4 ANSWER 4 OF 5 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1992:470220 CAPLUS
DOCUMENT NUMBER: 117:70220
TITLE: A synthetic procedure for the preparation of oligonucleotides without using ammonia and its application for the synthesis of oligonucleotides containing O-4-alkyl thymidines
AUTHOR(S): Eritja, Ramon; Robles, Jordi; Avino, Anna; Albericio, Fernando; Pedroso, Enrique
CORPORATE SOURCE: Dep. Mol. Genet., CSIC, Barcelona, 08034, Spain
SOURCE: Tetrahedron (1992), 48(20), 4171-82
CODEN: TETRAB; ISSN: 0040-4020
DOCUMENT TYPE: Journal
LANGUAGE: English
AB The preparation of 5'-O-dimethoxytrityl (DMT) and p-nitrophenylethyl (NPEOC, NPE) protected nucleosides linked to 4-(2-hydroxyethyl)-3-nitrobenzoic acid derivs. is described. These products attached to controlled-pore glass supports and together with DMT and NPE-protected nucleoside cyanoethyl phosphoramidites permits a first time preparation of short (6-13 bases) oligonucleotides containing the ammonia sensitive mutagenic bases O-4-Pr and O-4-Bu thymidines, 5' GCTprAGC 3' and 5' GCTbuAGC 3'.
IT 134403-97-7P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation and conversion to protected nucleosides)
RN 134403-97-7 CAPLUS
CN Benzoic acid, 4-[2-[(chlorocarbonyl)oxy]ethyl]-3-nitro-, methyl ester (9CI) (CA INDEX NAME)



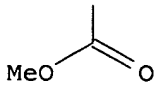
IT 134403-93-3P 142599-81-3P 142599-82-4P
RL: SPN (Synthetic preparation); PREP (Preparation)
(preparation of)
RN 134403-93-3 CAPLUS
CN Thymidine, 5'-O-[bis(4-methoxyphenyl)phenylmethyl]-, 3'-[2-[4-(methoxycarbonyl)-2-nitrophenyl]ethyl carbonate] (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



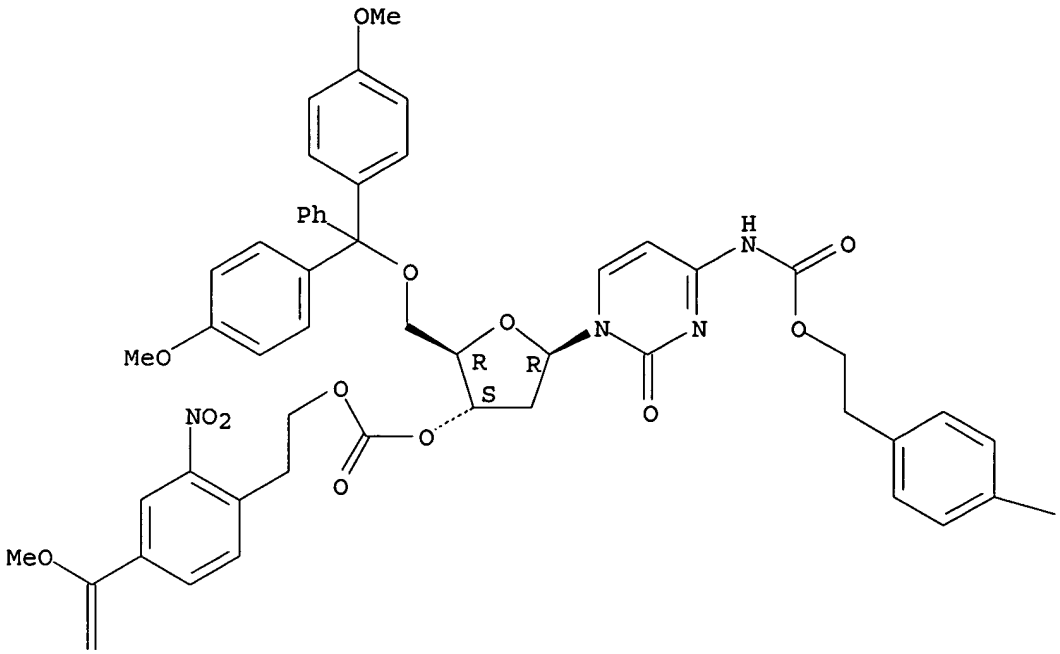
PAGE 2-A



RN 142599-81-3 CAPLUS
CN Cytidine, 5'-O-[bis(4-methoxyphenyl)phenylmethyl]-2'-deoxy-N-[[2-(4-nitrophenyl)ethoxy]carbonyl]-, 3'-[2-[4-(methoxycarbonyl)-2-nitrophenyl]ethyl carbonate] (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



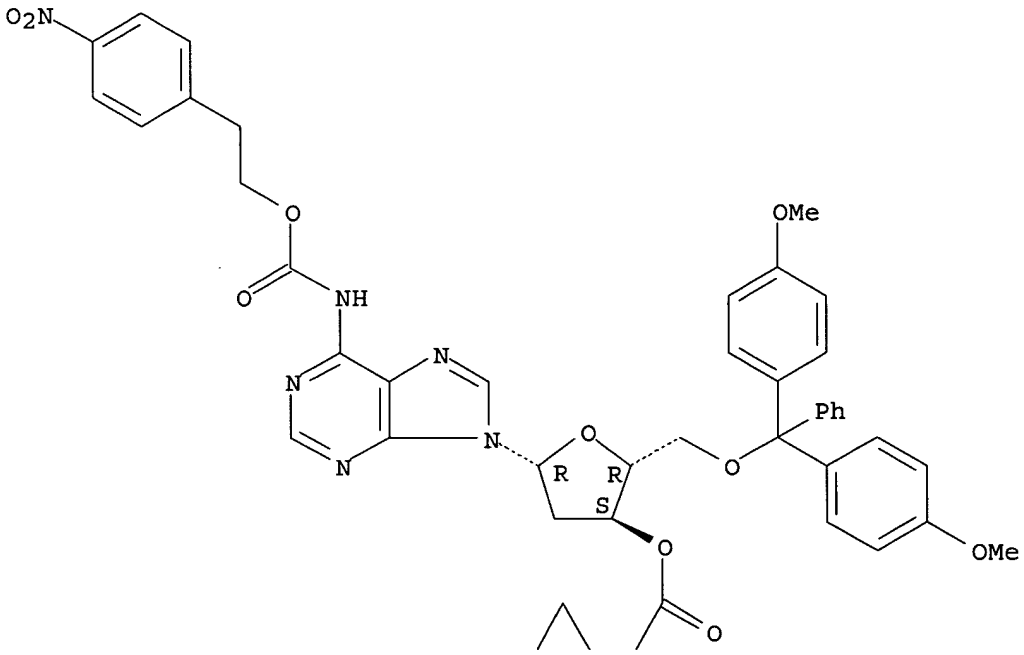
PAGE 1-B

PAGE 2-A

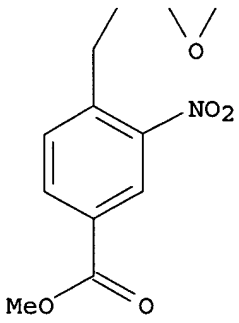
RN 142599-82-4 CAPLUS
CN Adenosine, 5'-O-[bis(4-methoxyphenyl)phenylmethyl]-2'-deoxy-N-[[2-(4-nitrophenyl)ethoxy]carbonyl]-, 3'-[2-[4-(methoxycarbonyl)-2-nitrophenyl]ethyl carbonate] (9CI) (CA INDEX NAME)

Absolute stereochemistry.

PAGE 1-A



PAGE 2-A



L4 ANSWER 5 OF 5 CAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1991:429800 CAPLUS

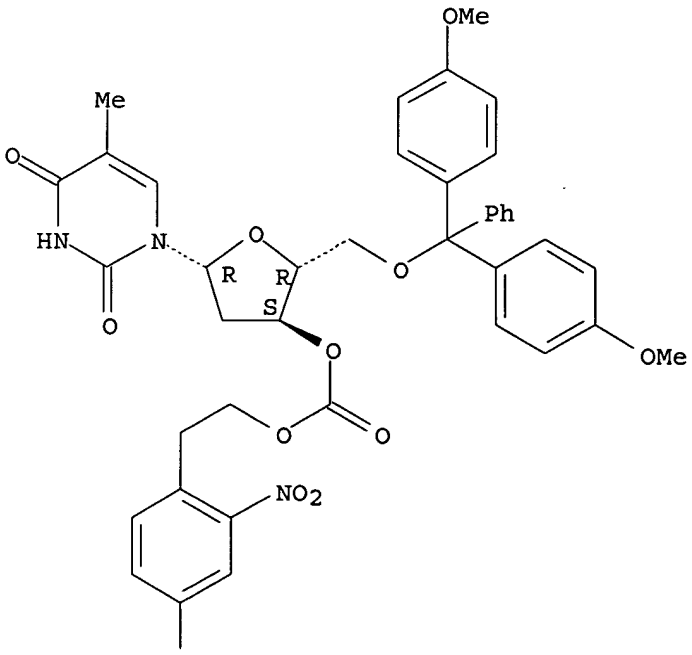
DOCUMENT NUMBER: 115:29800
TITLE: NPE-resin, a new approach to the solid-phase synthesis of protected peptides and oligonucleotides. I. Synthesis of the supports and their application to oligonucleotide synthesis
AUTHOR(S): Eritja, Ramon; Robles, Jordi; Fernandez-Forner, Dolors; Albericio, Fernando; Giralt, Ernest; Pedroso, Enrique
CORPORATE SOURCE: Dep. Mol. Genet., CSIC, Barcelona, E-08034, Spain
SOURCE: Tetrahedron Letters (1991), 32(11), 1511-14
CODEN: TELEAY; ISSN: 0040-4039
DOCUMENT TYPE: Journal
LANGUAGE: English

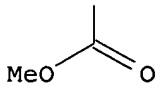
AB The preparation of polymeric supports containing a base labile 2-(2-nitrophenyl) Et linkage and the attachment of protected nucleosides is described together with their application to oligonucleotide synthesis.

IT 134403-93-3P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and hydrolysis of)
RN 134403-93-3 CAPLUS
CN Thymidine, 5'-O-[bis(4-methoxyphenyl)phenylmethyl]-, 3'-[2-[4-(methoxycarbonyl)-2-nitrophenyl]ethyl carbonate] (9CI) (CA INDEX NAME)

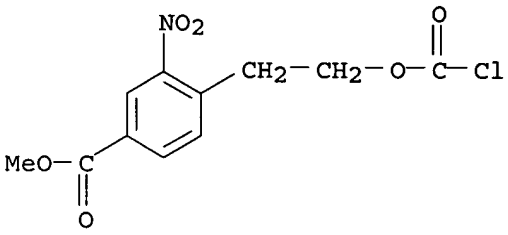
Absolute stereochemistry.

PAGE 1-A





IT 134403-97-7P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(preparation and reaction of, with thymidine derivative)
RN 134403-97-7 CAPLUS
CN Benzoic acid, 4-[2-[(chlorocarbonyl)oxy]ethyl]-3-nitro-, methyl ester (9CI) (CA INDEX NAME)



=> FIL HOME

COST IN U.S. DOLLARS	SINCE FILE ENTRY	TOTAL SESSION
FULL ESTIMATED COST	26.01	193.60
DISCOUNT AMOUNTS (FOR QUALIFYING ACCOUNTS)	SINCE FILE ENTRY	TOTAL SESSION
CA SUBSCRIBER PRICE	-3.75	-3.75

FILE 'HOME' ENTERED AT 16:48:03 ON 29 AUG 2006

=> d his

(FILE 'HOME' ENTERED AT 16:45:49 ON 29 AUG 2006)

FILE 'REGISTRY' ENTERED AT 16:46:00 ON 29 AUG 2006
L1 STRUCTURE UPLOADED
L2 0 S L1 SSS SAM
L3 11 S L1 SSS FULL

FILE 'CAPLUS' ENTERED AT 16:47:12 ON 29 AUG 2006
L4 5 S L3

FILE 'HOME' ENTERED AT 16:48:03 ON 29 AUG 2006